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Choice among Employer-Provided Insurance Plans

Matthew J. Eichner

More choice has emerged as a politically palatable alternative to fundamental health care reform in the United States. After the 1980s brought explosive increases in the cost of providing coverage to employees, the elderly, and the indigent, there was widespread anticipation of some governmental reform of the health care market. Even before it became clear that such reform would not materialize, however, and with increasing momentum afterwards, firms sought to induce their employees to choose alternatives to the traditional fee-for-service plans that presented the insured, their providers, or both with better incentives to control costs.

The incentives offered by firms to accept these new alternatives have typically included expanded coverage and lower monthly premiums collected in the form of payroll deductions. So many employees now choose between a traditional fee-for-service plan with cost sharing and comparatively high payroll deductions, and one or more health maintenance organizations (HMOs) with no cost sharing and dramatically lower monthly payroll deductions. The HMOs use administrative or supply-side mechanisms to control the costs of providing care; they have even sought to entice workers in the automobile industry who are covered by a collective bargaining agreement that provides for health care without coinsurance or payroll deductions. The airwaves in Michigan are full of advertisements from these HMOs arguing that they best the traditional fee-for-service plans not only on price, which is irrelevant for this population, but also on quality control and on the speed and efficiency with which they provide care.

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The federal government, too, has seized on choice as a means to lower health care costs. The Medicare program has allowed a number of HMOs to sign up the elderly. In return for accepting administrative controls over provision of services, the elderly are offered an expanded basket of services, typically including such things as pharmaceuticals and well-care, and freedom from the bother of applying and then waiting for reimbursement from the Medicare system. As in the case of the automobile workers, the campaign to sign up this group has taken to the airwaves with commercial messages touting the advantages of each plan while showing pictures of happy, healthy senior citizens engaging in various outdoor activities.

While HMOs have been in the forefront of the health care reform movement, other alternatives to traditional fee-for-service coverage have also emerged. The Health Insurance Access and Portability Act of 1996, known also as the Kennedy-Kassebaum bill, authorizes a limited trial of catastrophic insurance. Instead of seeking to implement cost control through administrative mechanisms and essentially eliminating coinsurance, catastrophic insurance makes individuals behave as if they are spending their own money by, in most cases, forcing them to spend their own money. To provide the necessary liquidity to satisfy deductibles, which might be several thousand dollars, the Kennedy-Kassebaum bill also provides for a tax-favored savings account from which expenditures below the level of the deductible may be paid. This eliminates the tax advantages of low-deductible, high-premium insurance plans.

Under such systems, the issue of how individuals make choices about insurance is a critical one. There are two fundamental questions, the answers to which will determine the long-term prospects of a system incorporating a high degree of choice among insurance alternatives. First, adverse selection of sicker individuals into the more generous coverage options is of concern. The initial estimates of cost saving from managed care and other alternative arrangements surely is due at least in part to the fact that these schemes attract the healthiest segments of the covered population. There is reason to suspect, therefore, that the cost savings will disappear or at least diminish as the number of people, and the number of comparatively unhealthy people in particular, covered under the new alternatives increases. Equally important is the responsiveness of employees to the pricing of the various insurance options. For example, how much lower must premiums be before large numbers of covered individuals will accept greater levels of risk bearing.

This paper describes the choices made by employees of a firm that offers three different insurance options, which differ both in their generosity and their costs to the employee. Section 8.1 describes the claims data used in this analysis. Section 8.2 examines the options elected by employees when their firms shifted from offering what was essentially a single plan to the menu of three plans. Section 8.3 considers the relative prices of the differ-

ent coverage options. Section 8.4 focuses on the apparent willingness of employees to bear greater risk in return for paying less for insurance. Section 8.5 describes the group of those employees who, after selecting initial coverage options, reconsider their choices and transfer into other plans. Section 8.6 concludes.

8.1 Claims Data

The data used in the following analysis consist of confidential MedStat claims records representing all expenditures incurred by a group of 16,930 firm employees and their dependents during the years 1989 through 1992. Each record represents a specific claim for a specific service on a specific date and indicates the identity of the individual receiving the service, the household to which he or she belongs, the plan under which the patient is covered, the diagnosis, the type of service, and the billed cost of care rendered. Basic demographic information, including the patient's age, gender, and location, is also included as part of each claim record. Claims data have an attractive property, in that individual plan enrollees are motivated to report every claim. At the same time, the firm paying the bill has an incentive to make sure that only legitimate claims are filed.

Two potential difficulties with the use of claims data must be addressed. First, only individuals who file claims are observed in the data. Aside from claims, there is no independent record of employment. Thus if an individual consumed no medical care during the three years of data available for each firm, he or she is invisible to the analysis described in this paper. This is not likely to be a large problem. Few individuals are so fortunate as to live three years without seeing a doctor either for preventive care or to address an acute condition. Figure 8.1 provides some descriptive evidence supporting this view. While large numbers of families appear in 1989 and 1990, by 1992 the new arrivals have slowed to a trickle. In a similar vein, the departure of an individual who leaves the firm during the three years covered by the data will not be detected. In this case, restricting the sample to employees aged twenty-five through fifty-five largely avoids the potential problem of retirees' vanishing from the panel.

A second concern involves the underreporting of claims that fall below the deductibles that apply to the various plans. Such behavior might result from individuals' believing that they would not, even with the claim, satisfy their annual deductibles. A significant degree of nonreporting would produce a discontinuity in the distribution of claims around the deductible. As shown in appendix figure 8A.1, on which the relevant deductible is indicated by a horizontal line, no such discontinuity is in fact present.

Beginning in 1990, the firm offers its employees a choice among three insurance plans with varying levels of premiums and benefits. Plan 1 features a comparatively high deductible and copayment percentage, while

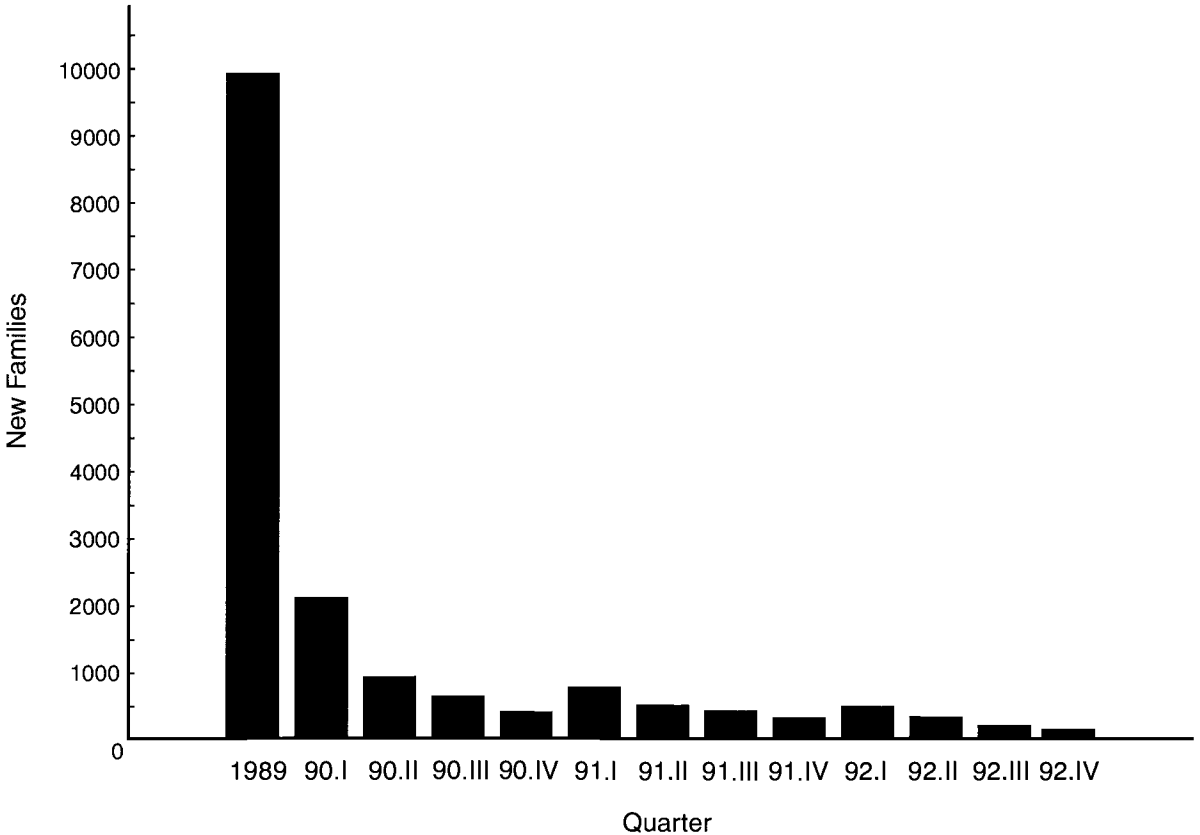

Fig. 8.1 New families appearing during each quarter

Table 8.1 **Plans Offered**

	Deductible ($)		Copayment (%)		Out-of-Pocket Limit ($)	
	Individual	Family	Individual	Family	Individual	Family
Plan 1	1,000	2,000	30	30	2,500	5,000
Plan 2	250	500	20	20	1,500	3,000
Plan 3	125	250	10	10	1,000	2,000

Source: Author's calculations from confidential MedStat claims data.

Table 8.2 **Demographic Characteristics by New Plan Chosen**

	Plan 1 (%)	Plan 2 (%)	Plan 3 (%)
Employee age			
25–34 Years	10.68	41.82	47.50
35–44 Years	13.16	39.32	47.51
45–55 Years	15.10	41.39	43.51
Employee gender			
Male	13.90	41.06	45.04
Female	10.83	40.73	48.44

Source: See table 8.1.

the provisions of plan 2 are typical of traditional fee-for-service options. Plan 3, with an individual annual deductible of only $125 and a copayment of 10 percent, is an option with particularly generous benefits. The exact provisions of each plan, for individual enrollees and employees with covered dependents, are shown in table 8.1. The table completely describes all differences among the three plans. Utilization review procedures for certain high-cost treatments and "carve-outs" for mental health, substance abuse, eyeglasses, and prescription drugs are the same across the three plans.

8.2 Initial Choice of Plan

At the start of 1990, the salaried employees of a Fortune 500 firm were required to elect new insurance coverage from a menu of three plans with varying employee contribution and reimbursement levels. Previously, all employees had essentially been covered under a single plan. In this section, I describe the characteristics of the employees who chose each of these options.

The basic demographics of those choosing each plan are shown in table 8.2. Somewhat surprising is the fact that the proportion of employees aged forty-five to fifty-five choosing plan 1, the high-deductible option, is actually greater than the proportion of employees in the younger age groups.

Table 8.3 Family Grouping by New Plan Chosen

	Plan 1 (%)	Plan 2 (%)	Plan 3 (%)
Employee only	18.72	35.05	46.23
Employee and spouse	9.85	46.95	43.20
Employee, spouse, and children	8.62	43.15	48.23
Employee and children	10.29	43.24	46.57

Source: See table 8.1.

A possible explanation may be that older employees tend to have higher asset balances, making the prospect of paying a deductible of $2,000 out of pocket during a year less daunting. Female employees are, on the whole, less likely to choose the high-deductible option. Enrollment in what the firm views as the base option, plan 2, remains at about 40 percent across all of the demographic groups. Table 8.3 shows the breakdown of enrollment decisions by family structure. Not surprisingly, those without families seem more likely to choose the high-deductible plan 1. As family size increases, the likelihood of electing this option falls.

Since the data include records from 1989, before the new system of three plans was introduced, it is possible to compare the spending in 1989 of those employees who elected each of the three options in 1990. Figure 8.2 does this by showing quintiles based on 1989 spending, and then looking at which plan employees in each of those quintiles chose in 1990. So, for example, about 17 percent of those who were in the lowest quintile in 1989 chose plan 1 in 1990. Generally, the proportion choosing plan 1 falls at the higher percentiles of the 1989 distribution, suggesting that individuals who spend more in 1989 are less likely to opt for the high-deductible plan in 1990. The individuals in the higher quintiles who do not choose plan 1 appear to opt for plan 2. Moving higher in the 1989 expenditure distribution, as plan 1 enrollment falls plan 2 enrollment rises. The proportion of individuals opting for the most generous plan does not appear to change appreciably across the 1989 expenditure distribution.

An ordered probit regression, relating 1990 plan choice to 1989 spending and the various demographic factors, confirms that controlling for all observables simultaneously does not appreciably alter the picture. The ordinal character of the dependent variable comes from the ranking of the plans in order of increasing generosity. Table 8.4 presents estimation results. The positive and significant coefficient on the indicators for 1989 expenditure quintile once again demonstrate that those individuals who spent more in 1989 chose more generous plans in 1990, even controlling for demographics and family structure. In addition, the positive coefficients on the indicator for spouse present and the indicator for spouse and children present suggest that an employee with a spouse was more likely

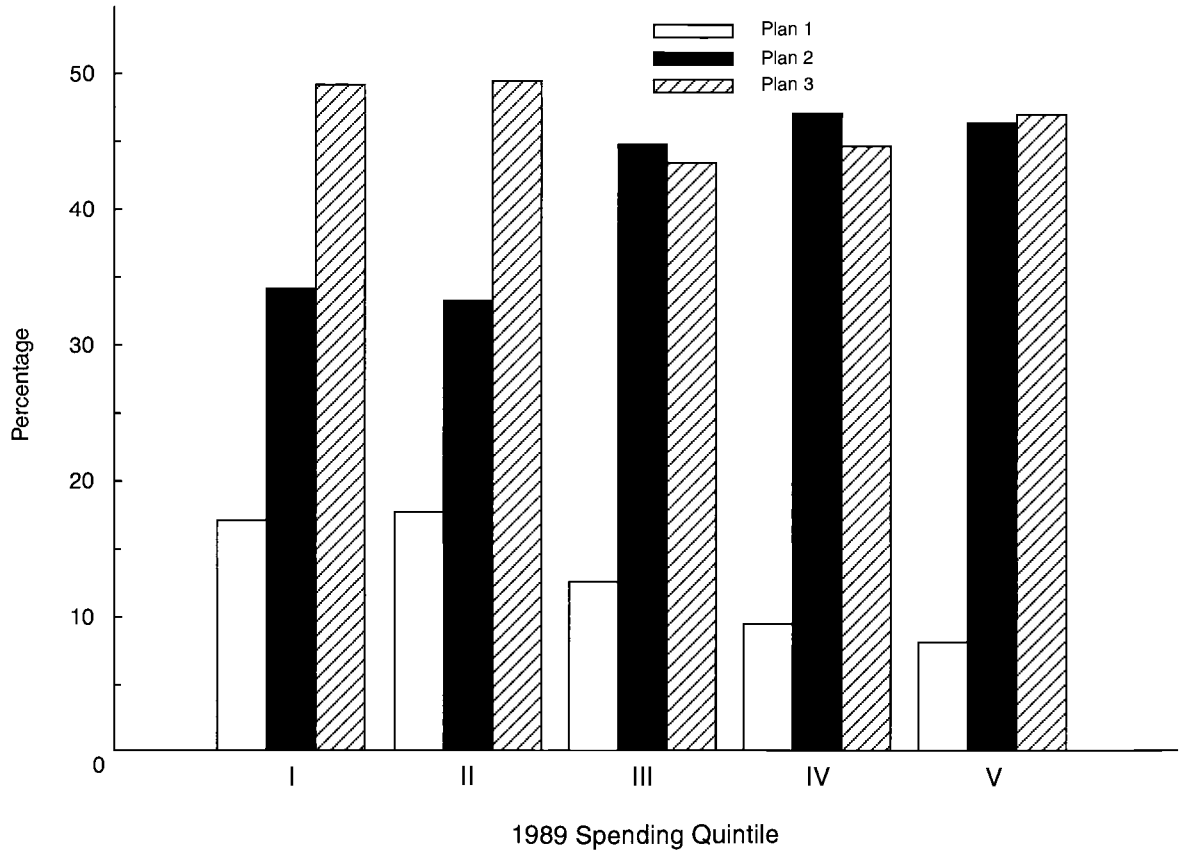

Fig. 8.2 1990 Plan choice by 1989 spending quintile

Table 8.4 Ordered Probit Estimation of 1990 Plan Choice

Second expenditure quintile in 1989	−0.0338
	(0.0284)
Third expenditure quintile in 1989	0.0831*
	(0.0292)
Fourth expenditure quintile in 1989	0.2154*
	(0.0305)
Fifth expenditure quintile 1989	0.2778*
	(0.0313)
Employee aged 25–35	0.0018
	(0.0363)
Employee aged 36–45	−0.0992*
	(0.0383)
Male employee	−0.2826*
	(0.0350)
Male employee aged 25–35	0.2239*
	(0.0454)
Male employee aged 36–45	0.2127*
	(0.0473)
Spouse present	0.0766*
	(0.0268)
Spouse and children present	0.1409*
	(0.0242)
Children (but not spouse) present	0.0560
	(0.0309)
First cut point	−0.9621
	(0.0373)
Second cut point	0.3317
	(0.0368)

Source: See table 8.1.

Notes: Specification also includes five location indicators. Sample size is 16,930. Standard errors are in parentheses.

*Significant at the 95 percent level.

to choose a more generous plan, and that an employee with both spouse and children was even more likely to elect such an option.

8.3 The Price of Insurance Coverage

The last section examined which employees chose the more generous coverage options. In this section I consider the price that employees pay, in the form of payroll deductions, for such a decision. I begin by considering the projections of the firm concerning the costs of the various insurance plans and then translate these expenditure projections into the relative costs to the employee.

Table 8.5 shows the projections prepared by the firm of the overall cost of the three coverage options. In other words, these figures reflect anticipated mean expenditure for family groups of each size under each of the

Table 8.5 **Projected and Actual Mean Expenditures, 1990–92**

	Projected ($)	1990 ($)	1991 ($)	1992 ($)	1990–92, annual average ($)
Plan 1					
Employee	1,890	874	1,136	1,245	1,109
		(270)	(310)	(504)	(217)
Employee and one dependent	3,590	1,860	1,850	3,138	2,367
		(240)	(213)	(506)	(211)
Employee and multiple dependents	5,190	4,370	3,253	5,052	4,380
		(587)	(445)	(1,810)	(713)
Plan 2					
Employee	2,200	1,362	1,770	1,660	1,654
		(152)	(217)	(166)	(104)
Employee and one dependent	4,200	3,467	3,046	3,371	3,364
		(252)	(176)	(264)	(135)
Employee and multiple dependents	6,090	5,382	4,734	4,846	5,137
		(125)	(279)	(297)	(165)
Plan 3					
Employee	2,460	2,154	2,504	2,045	2,240
		(143)	(185)	(140)	(90)
Employee and one dependent	4,720	5,081	4,946	4,366	4,841
		(460)	(478)	(431)	(269)
Employee and multiple dependents	6,650	6,266	6,575	5,610	6,094
		(348)	(468)	(355)	(221)

Source: See table 8.1.

plans. There are also some slight geographic adjustments in recognition of differences in cost across the six sites. While I will incorporate these in my calculations, the tables show only the price schedule for the largest site. In addition to the firm's estimates of costs, table 8.5 shows actual costs during each of the years covered by the data as well as the annual average over three years. The firm estimates correspond quite well to the actual costs for the more expensive plan and for the larger family groupings. For example, the firm estimates of average annual cost for plan 3 are $2,460, $4,720, and $6,650 for an employee alone, employee with a single dependent, and employee with multiple dependents, respectively. The corresponding actual mean costs for 1990 are $2,154, $5,081, and $6,266.

The estimates were less accurate for lower-cost employees, either those enrolled in plan 1 or those in plan 2 with few dependents. For these employees, the firm estimates tended to exceed the actual costs. For example, the projected mean expenditures for plan 1 were $1,890 for a employee alone, $3,590 for an employee with a single dependent, and $5,190 for an employee with multiple dependents. The actual average expenditures for 1990 were $874, $1,860, and $4,370. There are two possible explanations for these overly high estimates. Either the self-selection of healthy individuals into the low cost plans was greater than anticipated, or the incentive to spend less provided by the comparatively high deductible was more effective than anticipated.

The actual cost to the employee in payroll deductions of each of the three insurance options can be derived from these expenditure estimates. The firm follows an equal subsidy pricing rule, meaning that the firm provides the same dollar value of subsidy to its employees regardless of which plans they elect. The subsidy is set equal to 80 percent of the plan 2 average expenditure, so for an employee with no dependents, the subsidy is $440. For an employee with a single dependent, the firm contribution nearly doubles to $840, while an employee with multiple dependents receives a subsidy of $1,218. Table 8.6 shows the relative costs of the various coverage options after this equal-subsidy rule is implemented. The numbers in parentheses represent the percentage differences in payroll deductions for plans 1 and 3 relative to the base plan 2. Thus, plan 1 costs about 70 percent less than the base plan while plan 3 costs about 50 percent more.

These number still do not, however, reflect the true costs to employees. More generous plans bring, along with higher payroll deductions, lower deductibles and copayments. Deductibles are satisfied and copayments are made in after-tax dollars; yet the payroll deductions are essentially taken in pretax dollars. The firm provides employees a certain number of "benefit dollars" depending on salary. With these benefit dollars, an employee must purchase coverage through one of the three health insurance plans. The balance of these benefit dollars can then be used to purchase other insur-

Table 8.6 **Employee Cost by Plan and Family Grouping**

	Plan 1	Plan 2	Plan 3
Employee	$130	$440	$700
	(−70%)		(59%)
Employee and one dependent	$230	$840	$1,360
	(−73%)		(62%)
Employee and multiple dependents	$318	$1,218	$1,778
	(−74%)		(46%)

Source: See table 8.1.

Table 8.7 **Employee After-Tax Cost by Plan and Family Grouping**

	Plan 1	Plan 2	Plan 3
Employee	$91	$308	$490
	(−70%)		(59%)
Employee and one dependent	$161	$588	$952
	(−73%)		(62%)
Employee and multiple dependents	$223	$853	$1,245
	(−74%)		(46%)

Source: See table 8.1.

ance against death or disability, or they may be taken as salary, in which case they constitute taxable income. Therefore benefit dollars are essentially exchangeable against after-tax dollars in two different ways: They can be used to purchase a more comprehensive health insurance, thus reducing the coinsurance payments; and they may also be directly transformed into after-tax income. In either case, one of the benefit dollars can be traded against $1 - \tau$ after-tax dollars, where τ is the tax rate. For most of the calculations in this paper, I will assume τ to be 0.3 and convert the premiums on that basis into after-tax dollars. The resulting payroll deductions are shown in table 8.7.

8.4 Attitudes toward Risk

Thirteen percent of employees choose plan 1, 45 percent opt for plan 2, and the remaining 46 percent elect plan 3. Thus 45 percent pay about three times the plan 1 rate and 46 percent pay about five times the plan 1 rate to enroll in plan 3. This section examines these decisions. First, I look at the relation between premiums and reimbursements for employees electing plans 2 and 3 during the three years of data, and calculate the net cost of choosing the more generous coverage. Then I examine this issue in the expected utility framework, calculating the willingness to pay for expanded coverage under a set of admittedly rather restrictive assumptions.

Suppose that all employees who elected plans 2 and 3 in 1990 had instead chosen plan 1, and the money saved in payroll deductions was deposited in an account. Figure 8.3 shows the distribution of balances in these accounts after a three-year period. The mean balance is negative $57, suggesting that the average plan 2 and plan 3 enrollee in fact did better by choosing a more generous plan and paying the higher premiums. The median balance, however, is positive $277, so that over half of the plan 2 and plan 3 enrollees would end the period with more than that amount in their accounts. Once again assuming that 1989 expenditures may be used to control for differential health status, figure 8.4 makes clear that while the average employee saved by choosing plan 2 or plan 3, a substantial number of employees would have amassed more as plan 1 enrollees. About 65 percent of employees in the first two 1989 expenditure quintiles, for example, end the three-year period with a positive balance.

The analysis above, however, ignores at least two issues fundamental to the problem. First, a positive or negative balance is, in itself, inconclusive with regard to whether plan 1 represents a better choice than one of the more generous options. If there is at least a possibility of each employee's ending the three-year period with a negative balance, it is the employee's attitude toward risk that ultimately determines the optimal choice. A second, equally important issue relates to the fact that plan 1 not only costs less in premiums and pays less in reimbursements, but also offers a different schedule of incentives to which enrollees in the plan presumably respond. In fact, there is substantial evidence from experimental and nonexperimental research that the behavioral response to price incentives in the region relevant to these calculations—that is, in the part of the distribution between zero and several thousand dollars—is appreciable.[1]

To allow for both risk aversion and a behavioral response to the price of care requires a more structured approach to the problem. The first step in this analysis is to think about the out-of-pocket costs an employee is likely to face. As described in section 8.1 and shown in figure 8.5, the three plans offered by the firm each have different piece-wise linear price schedules, with kinks at the deductible and then again once the out-of-pocket maximum is reached. Each employee thus ends each year on one of the three segments. Ending the year on the first segment implies an out-of-pocket cost equal to expenditures. A family landing on the second segment pays the deductible plus the copayment rate times the difference between total expenditure and the deductible. Finally, the third segment is populated by those employees who have reached the out-of-pocket maximum and therefore pay no more than that amount.

I will begin by trying to model the probability that an employee with a

1. Newhouse (1993) describes an experimental approach to measuring the price response. Eichner (1996) essentially replicates the earlier results using a nonexperimental method.

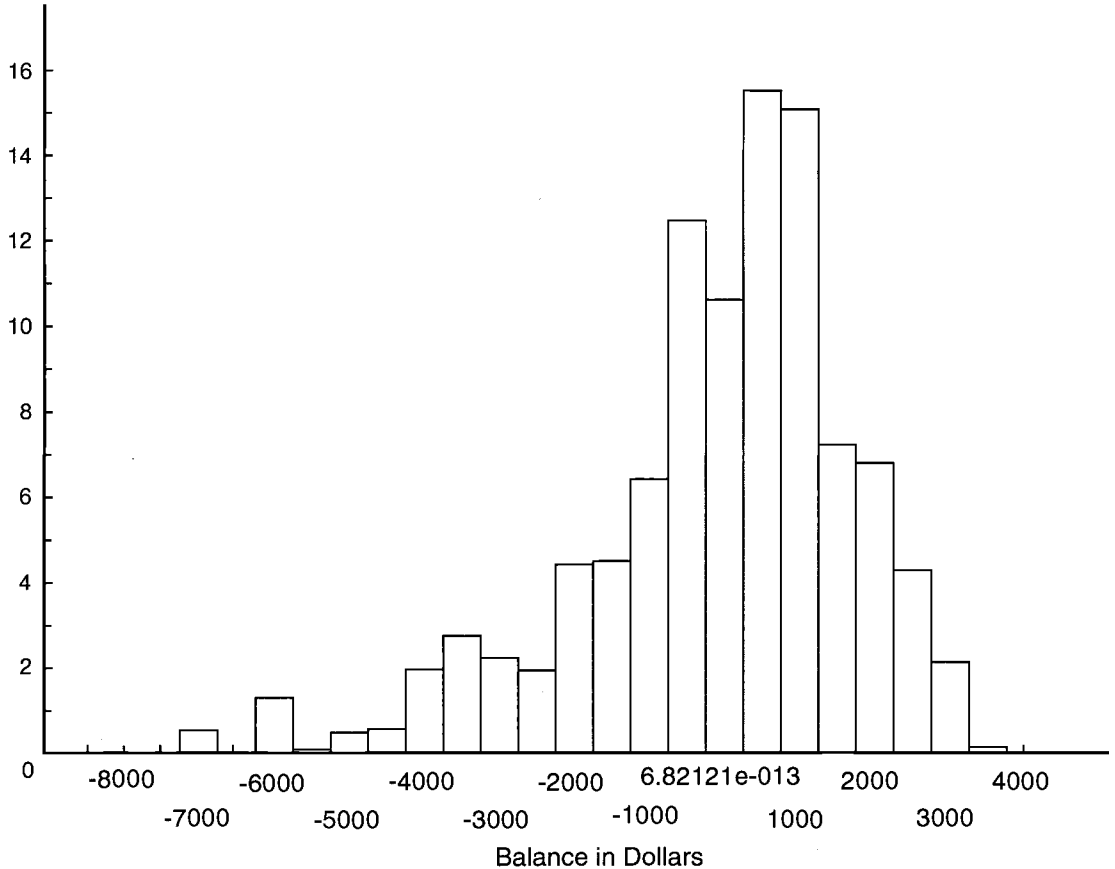

Fig. 8.3 Distribution of balance after three years

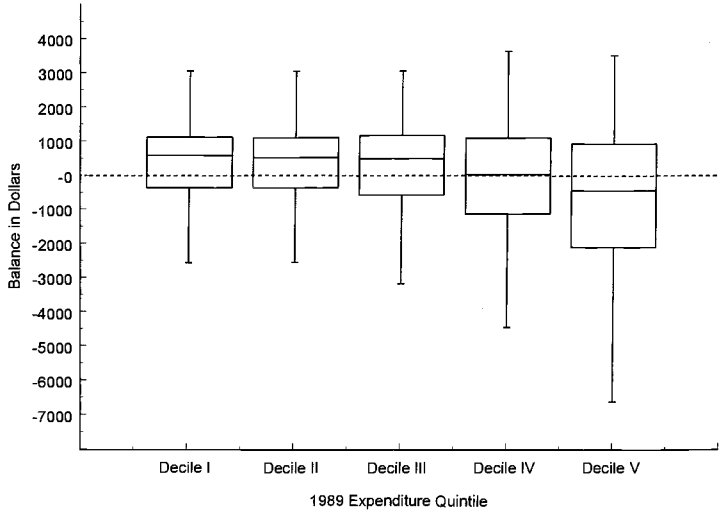

Fig. 8.4 Accumulation by 1989 expenditure quintile

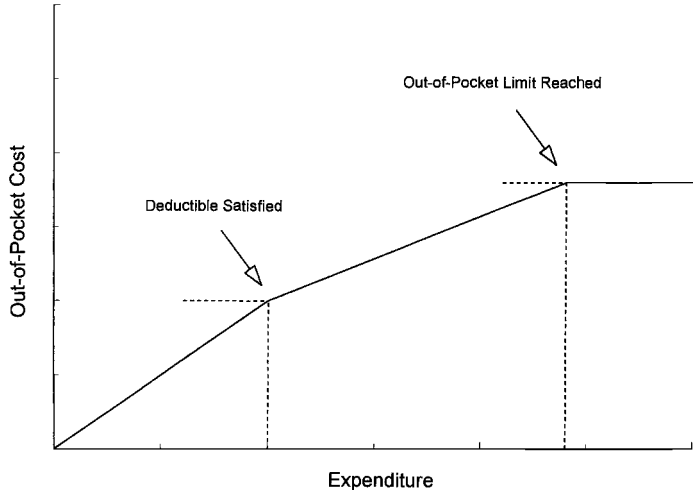

Fig. 8.5 Typical nonlinear price schedule

given age, gender, family grouping, and plan choice ends the year on one particular segment of the price schedule. This task is complicated by the fact that plan choice is surely correlated with unobservable health status. In order to separate the incentive effects of the plans from the self-selection behaviors of those who choose each plan, I will once again use 1989 expenditures as the means of controlling, however imperfectly, for differences in unobservable health status.

Once again, I will take advantage of the fact that the three segments have obvious rankings and use the ordered probit model. I perform the estimation by stacking all three years of data for those individuals who do not change plans during that time period and adding year effects to the specification. As shown in table 8.8, both the plan indicators and the 1989 expenditure-quintile indicators have the expected sign. The plan 1 indicator is negative and significant, suggesting that there is a plan 1 effect that tends to reduce expenditures. On the other hand, the positive and significant plan 3 effect captures the higher average spending under the more generous plan. The indicator for the second 1989 expenditure quintile is

Table 8.8 **Ordered Probit Estimation of Price Schedule Segment**

Second expenditure quintile in 1989	−0.0077
	(0.0195)
Third expenditure quintile in 1989	0.1109*
	(0.0196)
Fourth expenditure quintile in 1989	0.2790*
	(0.0204)
Fifth expenditure quintile 1989	0.3776*
	(0.0209)
Employee aged 25–35	−0.2597*
	(0.0244)
Employee aged 36–45	−0.1250*
	(0.0257)
Male employee	−0.0975*
	(0.0237)
Male employee aged 25–35	0.0105
	(0.0307)
Male employee aged 36–45	−0.0118
	(0.0318)
Spouse present	0.2729*
	(0.0201)
Single child present	0.1082*
	(0.0234)
Multiple children present	0.3221*
	(0.0240)
1991 indicator	−0.0825
	(0.0146)
1992 indicator	−0.0825
	(0.0147)
First cut point	−0.0989
	(0.0281)
Second cut point	1.8670
	(0.0295)

Source: See table 8.1.

Notes: Specification also includes five location indicators. Sample size is 41,124. Standard errors are in parentheses.

*Significant at the 95 percent level.

Table 8.9 Representative Probability Distributions

		Below Deductible	Between Deductible and Limit	At or Above Out-of-Pocket Limit
Male age fifty, with spouse and children	Plan 1	0.5885	0.3972	0.0143
	Plan 2	0.2396	0.6563	0.1041
	Plan 3	0.2188	0.6642	0.1170
Male age thirty, without spouse	Plan 1	0.8132	0.1847	0.0021
	Plan 2	0.4506	0.5166	0.0327
	Plan 3	0.3242	0.6103	0.0655
Male age thirty-five, with spouse	Plan 1	0.7145	0.2798	0.0057
	Plan 2	0.3536	0.5905	0.0558
	Plan 3	0.2535	0.6502	0.0963

Source: See table 8.1

essentially zero while those for the higher quintiles are positive, increasing, and statistically significant.

Using the results of this estimation, it is possible to calculate a three-point distribution for persons with a particular set of characteristics. This distribution captures the likelihood of ending the year on each of the three segments: below the deductible, between the deductible and out-of-pocket limit, and above the out-of-pocket limit. Table 8.9 shows some representative probability distributions for persons in the third quintile in 1989, that is, for the median spender with a particular set of characteristics. Not surprisingly, the probability of being below the deductible is greatest for each of the representative families under plan 1, and the probability of being below the deductible is slightly greater for each employee under plan 2 than under plan 3. Family structure and age are important determinants of the distribution. The probability of being below the deductible under plan 1 is 23 percentage points greater for a single male aged thirty than for a married male aged fifty with children.

To use these probability distributions to calculate the willingness of employees to pay for more insurance coverage, I apply the standard expected utility framework developed as expounded by Arrow (1971). Suppose that $U(W)$ has a positive first derivative and negative second derivative, so as to represent the preferences of a risk-averse employee. Under a particular insurance plan, out-of-pocket losses are assumed to follow some distribution $f_L(1)$. Thus the expected utility can be written

$$U(M - L - P) = \int_L U(M - l - P) f_L(l) d,$$

where M is income and P is the premium associated with the particular insurance plan.

Suppose such a calculation is made for a particular insurance plan. One

way to quantify the willingness to pay for an alternative is to find P^* such that

$$\int_{L^*} U(M - l^* - P^*) g_L^*(l^*) dl^* = \int_L U(M - l - P) f_L(l) dl,$$

where g_t is the density function describing the possible losses under the alternative plan. In other words, at what premium P^* is the utility the same under both plans?

Before I can make such a calculation, I need explicitly to recognize that the three-point distributions estimated above are only approximations to the continuous distributions. In order to calculate the premiums that leave the employees indifferent, I need to assign losses to each of the three mass points. I do this by assigning to each segment the mean loss for those employees located on the segment, conditional on plan choice and family grouping. The explicit form of the utility function I assume to be constant relative to risk aversion:

$$U(W) = \frac{W^{1-\rho}}{1 - \rho}.$$

Table 8.10 shows calculated and actual plan premiums for several representative employees. The utility function parameter ρ is set equal to 3.5, although the calculations are insensitive to other choices. The table reveals that plan 1 is available to all employees at a discount. In other words, the fifty-year-old male with a wife and children would be indifferent between

Table 8.10 Premiums Calculated to Preserve Indifference with Plan 2

Income		$30,000	$50,000	$70,000
	Plan 1	$379	$406	$417
		($223)	($223)	($223)
	Plan 2	($853)	($853)	($853)
Male age fifty, with spouse and children	Plan 3	$1,318	$1,309	$1,305
		($1,244)	($1,244)	($1,244)
	Plan 1	$228	$232	$234
		($91)	($91)	($91)
	Plan 2	($308)	($308)	($308)
Male age thirty, without spouse	Plan 3	$407	$406	$406
		($490)	($490)	($490)
	Plan 1	$243	$266	$275
		($161)	($161)	($161)
	Plan 2	($588)	($588)	($588)
Male age thirty-five, with spouse	Plan 3	$888	$882	$880
		($952)	($952)	($952)

Source: See table 8.1.

Note: Actual premiums in parentheses.

plans 1 and 2 if plan 1 were priced at $379. It is, in fact, available at the price of $223. Except for the fifty-year-old man with a wife and children, all employees pay more in premiums for the most generous option than the amount that the utility calculations suggest would leave them indifferent between plan 3 and plan 2. For example, the single male is indifferent between plans 2 and 3 if plan 3 can be had for $407. In fact, it is priced at $490.

8.5 Movement between Plans

Of the 19,930 employees in the sample, 3,224 are observed in more than one plan during the 1990–92 time period. In this section, I examine how these employees who switch plans differ in demographic characteristics and spending from those who remain in single plans during the three-year period.

Table 8.11 shows the observed transitions between plans. Over half of the movement consists of transfers from plan 3 to plan 2. Another 19 percent of those who switch move from plan 2 to plan 3. Movement into and out of plan 1 is much less common but more symmetrical.

Table 8.12 compares the demographic characteristics of employees who switch plans with the demographic characteristics of those who do not transfer during the 1990–92 period. With regard to age and gender, the switchers and stayers are essentially indistinguishable. However, employees with spouses and children are substantially more likely to switch plans than are single employees.

In spending patterns, the switchers and stayers are also dramatically different. Table 8.13 shows a series of censored regressions of log expenditures on an indicator for switching plans. The first column considers the relation between expenditures in 1990 and whether a transfer took place between 1990 and 1991. The positive and statistically significant coefficient of 2.03 suggests that those who switched plans spent about twice as much in 1990 as those who never switched plans. The second column tells

Table 8.11 Movement between Plans

New Plan	Plan 1	Plan 2	Plan 3
Old plan			
Plan 1	—	201 (8.14%)	88 (3.56%)
Plan 2	229 (9.28%)	—	486 (19.68)
Plan 3	107 (4.33%)	1,358 (55.00%)	—

Source: See table 8.1.

Table 8.12 Characteristics of Switchers and Stayers

	Stayers (%)	Switchers (%)
Age 25–34	41.60	38.09
Age 35–44	30.96	31.73
Age 45–55	27.44	30.18
Male	39.22	41.00
Employee only	38.99	23.95
Employee and spouse	18.17	19.73
Employee, spouse, and children	31.55	43.70
Employee and children (without spouse)	11.29	12.62

Source: See table 8.1.

a similar story with regard to 1991 expenditures and whether an employee chose a new plan in 1992. Individuals who switched plans spent more in their old plans during the year preceding the switch. The indicator in the specification shown in column (3) captures the effect on 1990 expenditures of a plan switch any time during the 1990–92 period. Once again, the coefficient is positive and statistically significant.

The fourth column of table 8.13 considers spending once an employee has entered a new plan. The positive and statistically significant coefficient on the indicator suggests that individuals also spend more after arriving in a new plan than do their colleagues who choose not to transfer. The fifth column reveals a similar picture for employees who transferred at the start of 1992. The specification in column (6) provides a backward look at spending and reveals that those who switched plans in either 1991 or 1992 spent over twice as much in 1992 as their colleagues who did not switch.

The final two columns show that the higher expenditures associated with plan-changers do trail off with time. The seventh column shows regression of 1990 expenditures on a indicator for having selected a new plan at the start of 1992. The eighth column similarly relates spending in 1992 with a change in plans at the start of 1991. In these last two regressions, the coefficient on the indicator is appreciably smaller, although still positive and significant.

8.6 Summary

This paper presents some basic evidence on how employees choose health insurance coverage from a menu of options. There is some evidence that they hesitate to choose low-deductible plans, even though these may be offered at a discount to a price that might leave them indifferent between the high-deductible plan and other, more generous coverage options. This conclusion, however, is based on adherence to a standard expected

Table 8.13 Expenditures and Movement between Plans

Dependent variable	Log expenditure 1990	Log expenditure 1991	Log expenditure 1990	Log expenditure 1991	Log Expenditure 1992	Log Expenditure 1992	Log Expenditure 1990	Log Expenditure 1992
Indicator	Transfer in 1991	Transfer in 1992	Transfer 1991 or 1992	Transfer in 1991	Transfer in 1992	Transfer in 1991 or 1992	Transfer in 1992	Transfer in 1991
Sample	Nonswitchers and switchers in 1991	Nonswitchers and switchers in 1992	All	Nonswitchers and switchers in 1991	Nonswitchers and switchers in 1992	All	Nonswitchers and switchers in 1992	Nonswitchers and switchers in 1991
Sample size	15,090	15,550	16,932	15,090	15,550	16,932	15,500	15,090
Age 25–34	−0.9547*	−0.9472*	−0.9669*	−1.0015*	−1.4304*	−1.5112*	−1.0870*	−1.6826*
	(0.1292)	(0.1418)	(0.1202)	(0.1476)	(0.1736)	(0.1674)	(0.1322)	(0.1971)
Age 35–44	−0.5396*	−0.4101*	−0.5111*	−0.4621*	−0.6170*	−0.7312*	−0.5615*	−0.7843*
	(0.1384)	(0.1522)	(0.1290)	(0.1580)	(0.1859)	(0.1792)	(0.1418)	(0.2104)
Male	−0.4217*	−0.1298	−0.3913*	−0.0953	−0.2264	−0.2927	−0.4279*	−0.3319
	(0.1292)	(0.1413)	(0.1199)	(0.1474)	(0.1722)	(0.1663)	(0.1316)	(0.1958)
Male, age 25–34	−0.3324*	−0.2399	−0.3428*	−0.2271	−0.1263	0.1874	−0.3296	−0.2249
	(0.1608)	(0.1761)	(0.1498)	(0.1834)	(0.2155)	(0.2084)	(0.1644)	(0.2448)
Male, age 35–44	−0.1475	−0.2809	−0.1977	−0.2753	−0.2478	−0.1168	−0.1938	−0.1782
	(0.1699)	(0.1862)	(0.1581)	(0.1938)	(0.2275)	(0.2197)	(0.1736)	(0.2582)
Spouse present	1.6035*	1.3648*	1.5446*	1.3955*	1.5833*	1.5788*	1.6463*	1.7761*
	(0.0702)	(0.0773)	(0.0656)	(0.0801)	(0.0946)	(0.0915)	(0.0721)	(0.1072)
Single child present	1.1624*	0.6710*	1.1271*	0.7056*	0.4583*	0.4981*	1.1804*	0.5682*
	(0.0828)	(0.0916)	(0.0775)	(0.0946)	(0.1121)	(0.1080)	(0.0853)	(0.1265)
Multiple children present	1.8257*	1.5705*	1.7933*	1.5961*	1.2131*	1.2214*	1.9096*	1.3758*
	(0.0834)	(0.0914)	(0.0774)	(0.0950)	(0.1116)	(0.1074)	(0.0853)	(0.1267)
Initially in Plan 1	−0.8905*	−1.0285*	−0.9333*	−0.9841*	−2.3894*	−2.1686*	−1.0308*	−2.4479*
	(0.1017)	(0.1155)	(0.0955)	(0.1162)	(0.1439)	(0.1351)	(0.1079)	(0.1585)
Initially in Plan 3	0.7571	0.7814*	0.6246*	0.8208*	−0.3677*	−0.1362*	0.7869*	0.3444*
	(0.0684)	(0.0752)	(0.0639)	(0.0780)	(0.0919)	(0.0887)	(0.0702)	(0.1039)
Indicator	2.0374*	2.4160*	1.1306*	2.5429*	3.8773*	2.6088*	0.4011*	0.8239*
	(0.1064)	(0.1039)	(0.0739)	(0.1208)	(0.1257)	(0.1020)	(0.0983)	(0.1635)
Constant	3.0450	3.0514	3.1266	2.9836	1.8374	1.6591	2.9125	1.0725

Source: See table 8.1.

Note: Regressions include six location indicators. Standard errors are in parentheses.

*Significant at the 95 percent level.

utility approach, which might prove an inadequate framework for evaluating employee willingness to bear risk. In addition, the conclusions are no doubt sensitive to how one views the likelihood of persistent losses over a comparatively long time period. The probability of such outcomes can be assessed using the empirical approach taken by Eichner, McClellan, and Wise (1997). Applying this technique to the issue of plan choice is a future goal of this work.

In addition, the paper examines evidence concerning those employees who elect to change plans voluntarily. This group consists disproportionately of larger family groupings, which tend to move between the two more generous coverage options. Movement between plans seems to be associated with higher expenditures both before and after the move.

Appendix

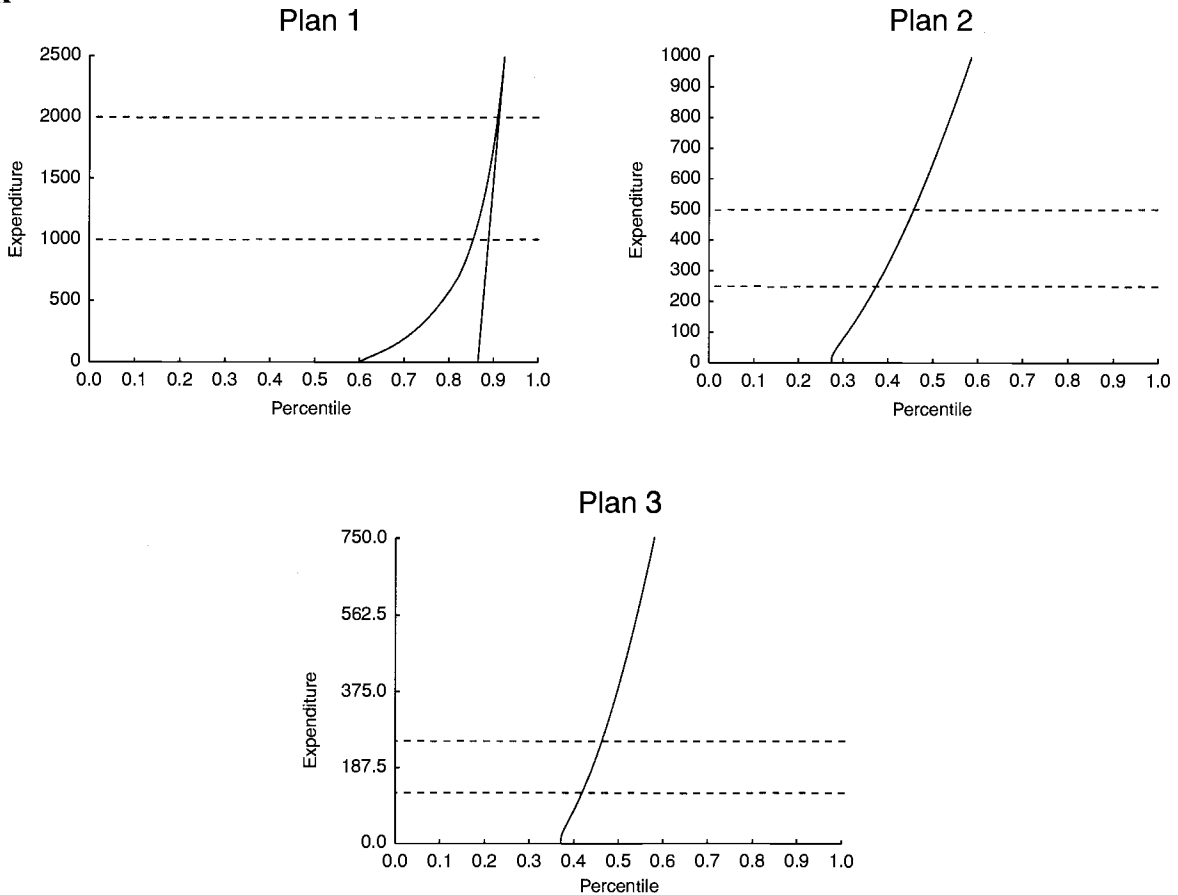

Fig. 8A.1 Search for discontinuities about deductibles

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